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S. D. KRAMER
AMERICAN MUSEUM OF NATURAL HISTORY

SOCIETIES AND ACADEMIES

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 540th meeting of the society was held in the Assembly Hall of the Cosmos Club, Saturday, April 17, 1915, called to order by Vice-president Rose at 8 P.M., with 50 persons present.

Under the heading Brief Notes, Dr. L. O. Howard called attention to the development of mosquito larvæ and adults in pools of water formed by melting snow in the mountains of New York state, the eggs having been laid on the ground the previous summer in places where pools would be formed.

The first paper of the regular program was by J. D. Hood, "Some Features in the Morphology of the Insect Order Thysanoptera." Mr. Hood gave a general account of the Thysanoptera, called attention to the large amount of systematic work that had been done in it during recent years, and said that it was estimated that about 25,000 forms would be found to exist in the order. He called particular attention to the structure and mechanics of the foot, and to the asymmetrical mouth parts, illustrating the peculiarities of each by diagrams. Mr. Hood's paper was discussed by Dr. Howard.

The second paper of the regular program was by Mr. E. A. Goldman, "Biological Explorations in Eastern Panama." Mr. Goldman gave an account of his work in connection with the Smithsonian Biological Survey of the Panama Canal Zone, in 1912, in extreme eastern Panama, with a view to determining the faunal relations of that section to the Canal Zone and to western Panama. Very little zoological collecting had previously been done in the region which was scarcely better known than in the sixteenth century, at the time of the Conquest.

The region proved to be mainly southern American in faunal characters, with a slight admixture of north and middle American elements. Many South American species apparently reach their northern limits here. The collections of birds and mammals have been identified, and about forty of the mammals and thirty of the birds have been described as new. Among the birds are three new genera, two of them of humming birds. No new genera of mammals were taken, but several had not previously been reported from Panama. A new species of *Capybara* was among the more notable mammals. Spiny rats of the genus *Proechimys* were found common. The tail, normally long in this animal, is lost through some pathological condition in many individuals, and owing to this circumstance the natives believe in the existence of two species.

Mr. Goldman's paper was illustrated by lantern slide views of the country explored, and of objects pertaining to its natural history. It was discussed by Messrs. Wetmore and Lyon.

The third and last paper of the program was by Vernon Bailey, "Notes on Variation Distribution and Habits of the Pocket-Gophers of the Genus *Thomomys*." Mr. Bailey said these rodents constituting a genus of the peculiar American family Geomyidæ are distributed over the western United States extending from Alberta and British Columbia to southern Mexico. They range from the Arctic Alpine to the Tropical zonal areas and are generally abundant in the regions they inhabit. They are burrowers, live almost entirely underground and are probably more restricted in their individual habitats than any other of our native mammals. This to some extent accounts for their great range of variation and the large number of recognizable forms, nearly ninety. Almost every change in climate, soil and environment is reflected by some change in the color, size, proportions, or cranial characters. There is wonderful adaptation in their color to that of the soil inhabited by them, varying from creamy white on the light sands of the lower Colorado River flats to dark browns on the volcanic plateaus of Mexico and Arizona, and almost black along the humid Pacific coast region of northwestern California. There is also a pure black form on the coast of Oregon which may be an extreme case of dichromatism, as there are several species with a well-marked black phase.

Their habit of burrowing enables the gophers to escape many enemies and to adapt themselves to rigorous climatic conditions. In the past this

habit was useful in keeping the soil upturned and "ploughed," but under artificial cultivation by man this habit renders the animals a pest. They are very destructive to root crops, clover, alfalfa and grain. By cutting roots they often do much damage to orchards, nurseries and vineyards. They may be destroyed by trapping or on a large scale by placing poisoned food in their burrows. In a revision of the genus just submitted for publication as a number of the *North American Fauna* a general discussion of the habits is given as well as descriptions of species and subspecies, and maps showing distribution.

Mr. Bailey's communication was illustrated by lantern slides from photographs of living animals and of their work.

Messrs. Cooke, Wilcox, Howard and others took part in the discussion.

The 541st meeting of the society was held in the Assembly Hall of the Cosmos Club, Saturday, May 1, 1915, called to order by Vice-president Rose at 8 P.M., with twenty-six persons present.

On recommendation of the council, Admiral G. W. Baird was elected to active membership.

Under the heading of Brief Notes and Exhibition of Specimens, Dr. O. P. Hay made remarks on the extinct ground sloths of America and called attention to the existence of a specimen of *Nothrotherium* from the North American Pleistocene, in Baylor University, Texas. Mr. Wm. Palmer announced that he had lately seen an apparently wild specimen of the European skylark in near-by Virginia. He also exhibited the jaws of a ray, *Rhinoptera bonasus,* collected at Chesapeake Beach, Maryland. Mr. E. W. Nelson called attention to the newspaper notoriety attained by the San Antonio (Texas) bat roost erected under the misconception that bats were destructive to mosquitoes. He said there was no evidence that the species of bats (*Nyctinomus mexicanus*) in these roosts consumed mosquitoes, and that they foraged so far from these roosts that there would be little likelihood of their consuming insects in the vicinity of San Antonio.

The first communication of the regular program was by C. W. Gilmore, "Observations on New Dinosaurian Reptiles."

The speaker discussed briefly some of the more important discoveries of dinosaurian fossils made in North America during the past two or three years, referring especially to the explorations conducted by the American Museum of Natural History and Canadian Geological Survey in the Edmonton and Belly River formations in the Province of Alberta, Canada. He stated that the recent finding of several specimens with which was preserved impressions of considerable parts of the epidermal covering, leads us to hope that the time is not far distant when the external appearance of these animals will be as well known as is the internal skeleton.

Lantern slides of many of the more striking specimens were shown, the speaker confining himself to brief explanatory remarks regarding their systematic position and their more striking characteristics. The following forms were discussed, *Saurolophus* and *Corthyosaurus* of the Trachodont dinosaurs; *Ankylosaurus,* an armored reptile; *Monoclonius, Anchiceratops, Ceratops, Styracosaurus* and *Brachyceratops,* all of the Ceratopsia or horned dinosaurs. In conclusion, life restorations of *Brachyceratops, Thescelosaurus* and *Stegosaurus* modeled by the speaker were exhibited for the first time.

Mr. Gilmore's communication was discussed by Messrs. O. P. Hay, Nelson and Lyon.

The second communication was by William Palmer, "The Basic Facts of Bird Coloration."

The complex and varied coloration of birds was explained as due to several causes, which were grouped as pigmental, structural, chemical and a mixture of two of these. The basic pigmentation was considered as composed of blackish, reddish and yellowish cells, the latter being much subdued and principally diluting the others. This coloration group was classed as physiological, in contradistinction to all other tints, colors and glossiness, which were considered as psychological results due to semi-consciousness, especially to eyesight, food and certain phases of light.

This arrangement was based on the experience of the speaker on the forest slopes of Mt. Gede, in western Java, where it was found that non-glossy, dark and dingy colored birds were confined almost entirely to a habitat of damp, dense ground-cover vegetation, while those clothed in more or less brilliant colors were inhabitants of the intermediate areas above the ground cover and below the dense canopy of the branches of the tall forest growth.

In the tops of the forest trees a different type of coloration was evident; glossy blacks, whites and grays, were exclusively characteristic, or predominant. These types of coloration were continued down into the lowlands in the same order, but with different species or genera, and with the tree-top type spreading through the more open

and drier areas of the lowlands to near and on the ground.

Less definite intermediate areas between the ground cover and the tree tops, less dense, or with a different vegetation, were shown to be habitats of birds largely green or yellow, the result being that given the general and special coloration of a bird its habitat could be largely or clearly indicated, apparent exceptions having been greatly influenced by other factors.

A correlation was made of these distributional results with the birds of eastern North America, which were considered as governed by the same influences, though forest changes have in modern times greatly complicated the question.

The coloration of other animals is governed by the same laws with similar results, so that where white, glossy black, bright and highly colored areas exist on animals, it is due to psychological progressive adaptations, based on a less complex and simpler dull coloration to be considered as basic, primitive, and thus more purely physiological in contrast.

Mr. Palmer's communication was discussed by Mr. Nelson and Hon. George Shiras, 3d.

M. W. LYON, JR.,
Recording Secretary

THE BOTANICAL SOCIETY OF WASHINGTON

THE one hundred and fourth regular meeting of the Botanical Society of Washington was held in the Assembly Hall of the Cosmos Club at 8 P.M., on Tuesday, April 6, 1915. Forty-five members and fifty-three guests were present. Mr. W. R. Chapline, Jr., was elected to membership. The following scientific program was presented:

Prepaleozoic Algal Deposits: CHARLES D. WALCOTT.

Mr. Walcott described the stratigraphic position of the great Prepaleozoic Beltian series of central Montana, which he considered to be of fresh or brackish water origin. They were deposited in a large inland lake or lakes covering approximately 6,000 square miles of area, also on river flood plains as sand and gravel, or as fine dust carried by the wind. The formations now consist of sandstone, siliceous shales, calcareous shales and beds of limestone, the last varying in thickness from a few inches to several thousand feet. The same type of deposits also occurs in the Grand Canyon region of Arizona, and they extend northward along the main ranges of the Rocky Mountains far into Alberta and British Columbia.

At a horizon approximately 9,000 feet below the base of the Cambrian numerous reefs of algal deposits occur at several horizons in the Newland limestone formation of the Beltian in Montana, and isolated concretionary-like forms occur scattered at various levels in the overlying Spokane shales of the Belt Mountains. The algal remains occur in many forms, some of which are surprisingly similar to those of the fresh-water lake and stream, blue-green algal, deposits of Pennsylvania, New York, Michigan, etc. Others are similar in appearance to the blue-green and green algal deposits of the thermal waters of the Yellowstone National Park.

Mr. Walcott illustrated by lantern slides the various forms of algal deposits as they occur in the Pre-Cambrian rocks and also recent deposits. Photographs of thin sections of both the fossil and recent deposits showed similar chains of cells which are characteristic of the blue-green alga. Other photographs illustrated recent bacteria and those associated with the algal remains in the Prepaleozoic of Montana. These included the Micrococci, with both round and oval cells. Some of the sections appear to carry rodlike bacilli.

The Algal Flora of Some Eocene Oil Shales: CHARLES A. DAVIS.

Extensive beds of petroleum-yielding shales of Eocene age occur in northwestern Colorado and westward. They are carbonaceous, and when fresh are dark brown, hard, tough and compact, with a bituminous odor. So far as observed, they contain no free oil, but yield petroleum on distillation.

By modifying methods of sectioning employed by various investigators in studying coals, the author successfully sectioned these shales by microtome. The sections show an organic detrital magma containing an extensive microscopic flora, which includes a large number of perfectly preserved micro-algæ related to blue-green and higher types.

Thirty-five lantern slides showed the various algæ found in these shales.

Algæ in the Upper Paleozoic: DAVID WHITE.

PERLEY SPAULDING,
Corresponding Secretary

ANTHROPOLOGICAL SOCIETY OF WASHINGTON

AT the 484th meeting of the society, held March 2, Mr. E. T. Williams, of the Department

of State, read a paper on "Confucianism." It existed before Confucius was born but was called by his name because its sacred books were in large part edited by him and he is now one of the chief objects of worship in the system. Confucianism is not merely a system of ethics, as an elaborate description of its rites and sacrifices showed. In 1907 the Empress Dowager raised Confucius to equal rank with the Supreme Deity in the pantheon. President Yuan Shih-kai participated last September in the worship of Confucius at the temple in Peking and offered sacrifice to Shangti in the Temple of Heaven. Ancestor worship prescribed by Confucianism is kept up in private life but Buddhism also is popular in its modified form, which offers immortality in the "Western Heaven." Freedom of worship is claimed in China.

Daniel Folkmar,
Secretary

The New Orleans Academy of Sciences

The regular monthly meeting of the academy was held on Tuesday, April 19, at Tulane University. The president, Dr. Gustav Mann, in the chair and thirty-two members and fellows present. The first paper of the evening was read by Professor Hugh Mercer Blain, of Louisiana State University, "The Old South in Humorous Sketch and Story." Following Professor Blain's paper were two short papers, the first by Dr. J. H. Clo, "A New Form of Conductivity Bridge." A description of a direct-reading device for measuring the electrical conductivity of conductors between the limits 10^{+3} and 10^{-8} with a modification by which the instrument may become an ohmmeter of wide range. The second was by Dr. F. P. Chillingworth, "Some Notes on the Mechanism of the Heart," illustrated by an original model devised by the speaker. All three papers were the subject of discussion.

R. S. Cocks,
Secretary

The American Philosophical Society

At the meeting of the society held on May 7, the following paper was read:

Oil Concentration of Ores: Howard W. DuBois.

Oil has recently been found to be very efficient in the concentration of ores of the base metals, especially copper and zinc. Many of the largest mining companies are adopting this process where water concentration methods have given an unsatisfactory recovery due to the metals having a specific gravity similar to the gangue.

The exact action of the oil is rather imperfectly understood, as the exceedingly small quantities (less than 1/10 of one per cent. in some cases) employed have a concentrating action quite disproportionate to the quantities of oil used. In brief, the concentration seems to be due to the selective action developed by the oil, which coats the metallic particles with a thin film forming an attractive medium for the attachment of gas bubbles produced in the process. These bubbles act like so many life preservers, causing the metallic particles to float on the surface and are collected continuously. The gangue is precipitated through the mass of the oil-water mixture and is drawn off continuously. Some ores which would only give a 50-per-cent. extraction by the standard water concentration methods have given a recovery as high as 93 per cent., by the oil process.

The process is a very cheap one and can be applied to a great variety of ores. The courts have declared that the process is open for use without royalty obligations. The installations already made indicate that it will revolutionize concentrating methods for the base metals and will play the same part in cheapening the extraction of the base metals as the cyanide process has in the case of the precious metals.

The Indiana Academy of Sciences

The Indiana Academy of Sciences met at Bloomington, Ind., on Thursday, Friday and Saturday, May 20, 21 and 22. On Friday evening Professor Foley, of the physics department of Indiana University, gave a lecture on "Electrical Discharges," which was illustrated by about fifty experiments. A "smoker" followed the lecture. On Friday morning fifty members tramped to the reservoir belonging to the university, making a study of the geology and botany of the region en route, and at noon a picnic luncheon was served by the local members. On Friday afternoon automobiles were provided and the party visited a number of the limestone quarries and stone mills of the district. Many interesting operations were witnessed, among them the diamond sawing and the turning of limestone. On Friday evening the Bloomington members of the academy gave a banquet to the visiting members. On Saturday morning a number of members visited the cave region near Mitchell, Ind. The fall meeting of the academy is to take place at Indianapolis early in December.

F. B. Wade,
Press Secretary